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Seroepidemiology of Chikungunya, West Nile and Zika viruses among blood donors in Rwanda

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Chikungunya (CHIKV), West Nile (WNV) and Zika (ZIKV) viruses have natural sylvatic cycles, but may move to cities to infect humans. Their seroprevalence in Rwanda is unknown, despite their origin from its neighboring countries. To report their sero-surveillance study in Rwanda, three viral-specific immunoglobulin G (IgG) were assayed, on blood donors, consecutively for 874 Rwandan and 199 Swedish against CHIKV and WNV and for 874 Rwandan and 215 Swedish against ZIKV using ELISA commercial kits, except for CHIKV where a novel recombinant antigen based on the envelope protein p62-E1 was used. Positive samples of IgG specific antibodies against WNV were assayed against Tick-Borne Encephalitis Virus (TBEV) using a commercial ELISA kit. The seroprevalence of CHIKV was high in Rwanda (47%) compared to Sweden (4.5%). WNV seroprevalence was 10.4% and 14.1%, respectively, in Rwanda and Sweden. In the latter group, 46.4% of WNV specific-IgG positive subjects were suspected to be false positive due to higher OD values against TBEV, explaining the unexpected high seroprevalence of WNV in Sweden. The seroprevalence of ZIKV in Rwanda was low at 1.4%. No subject was positive for IgG antibodies against ZIKV is more seroprevalent as compared to WNV and ZIKV. There is high and bidirectional cross-reactivity between TBE and WNV IgG.

Biography

Eric Seruyange is currently pursuing his PhD in Biomedicine at the University of Gothenburg in Sweden. He is also the Lecturer at the College of Medicine and Health Sciences of the University of Rwanda and also a Physician at Rwanda Military Hospital where he is In-Charge of Infectious Diseases Clinic.

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